

REMARKS

Reconsideration of the application is respectfully requested.

This amendment neither cancels nor adds new claims, but rather amends only claims 1, 16, 20, and 24. No new matter has been added as the amendments are supported in the specification as filed, at page 8, lines 3-15.

Claims 1-27 stand rejected as being either anticipated or obvious in view of U.S. Patent No. 6,271,946 issued to Chang, et al. ("Chang"), and another reference. Applicants respectfully disagree with the rejection for the following reasons.

Beginning with claim 1, this claim recites a method in which a first route is associated with the first channel of a WDM link, a second route is associated with a second channel of the WDM link, and a third route is associated with a third channel in another WDM link. These routes provide similar connections, although the links are different. The third route is selected instead of the second route, as a diverse alternate route. In other words, the third route is selected instead of the second route as a diverse alternate route, to re-establish a connection that used the first route. Thus, for example, in the event of a failure of the first route, the third route, rather than the second route, is used to re-establish the connection. This preselection of a third route, instead of the second route, to re-establish the connection, is beneficial when the link for the second route is disconnected and additional delay and traffic loss is avoided, because the connection can be immediately re-established according to the preselected third route that uses a different link. Such a problem and associated method for solution are not taught or suggested in Chang or the other relied upon art reference.

Chang has an optical layer survivability and security system in which secure transmissions are effected which deploy two or more disjoint paths to carry information between different end systems. A message is secured by splitting it into shares or components. For example, referring now to Fig. 3B of Chang, on each of the disjoint paths 321, 322, and 323, two-thirds of the message is sent (two out of three packets) each packet on a different wavelength. If an adversary taps one path it can

only obtain two-thirds of the information being sent. At the receiver side, two paths are sufficient to obtain all the information.

In Chang, each destination is associated with a preferred path which minimizes the cost. If a preferred path at a default wavelength is already occupied by another packet, then a network element quickly decides if there is an available alternate wavelength though the same preferred path. **If there is no choice of wavelengths which allows transport of the packet through the most preferred path, the next preferred path is selected (path deflection).** For example, in Fig. 5, paths 503 and 504 in cascade may represent the alternative path. (Chang, col. 11, lines 14-17) Accordingly, this does not disclose, teach or suggest the method in Applicants' claim 1 where a third route is selected instead of a second route as a diverse alternate route, to re-establish a connection that used the first route. Although in Chang there is a reference to a preferred path and an alternate path between source and destinations (Fig. 5), these are used in the context of providing greater security to the message, rather than selecting a route instead of another as a diverse alternate route to re-establish a connection that used a current route. Accordingly, reconsideration and withdrawal of the rejection of claim 1, as anticipated or obvious in view of Chang, is requested.

Turning now to claim 4, this claim recites a method of preselecting a diverse alternate route when using WDM, in which a first physical link identifier is assigned to a first route, a second physical link identifier is assigned to a second route, where the routes use channels in different fiber links, where the first and second routes have no common route segment, and comparing the first identifier with the second identifier to select a diverse alternate route for the first route. When the first and second identifiers are different, the second route is selected as the diverse alternate route. Chang does not teach or suggest such a method.

In Chang, message security is ensured by using a preferred path with different wavelengths, and by splitting a message into multiple components where each component is transmitted on a different wavelength. Secure transmissions are effected by deploying two or more disjoint paths, so that if information on one path is tapped, it is impossible to capture all the information being sent. In other words, the advantage is

that an adversary needs to tap multiple paths to obtain the information being sent. This variation becomes more effective when the number of disjoint optical paths increase. At the receiver side, a number of such paths are combined to obtain the original information being sent.

With respect to the use of different paths in Chang, a preferred path is identified for a given destination, **and if there is no choice of wavelengths which allows transport of a packet through the most preferred path, the next preferred path is selected (path deflection)**. See for example, Fig. 5, paths 503 and 504 in cascade represent the alternative path. Accordingly, this does not teach or suggest, for example, in Applicants' claim 4 that a diverse alternate route be preselected by comparing a first physical link identifier with a second physical link identifier to select the diverse alternate route for a first route, and when these link identifiers are different the second route is selected as the diverse alternate route. The criteria taught in Chang for changing paths does not teach or suggest Applicants' method in claim 4. The same reasons also apply to find that claim 10 is neither anticipated nor obvious in view of Chang.

Turning now to claim 16, a method is recited in which a first route is associated with a first channel, and a second route is associate with a second channel, where the routes provide connections to similar nodes but are in different physical links. The second route is selected as the diverse alternate route for the first route, to re-establish a connection upon failure of the first route. Although Chang describes a preferred path, as well as an alternate path to the same destination, Chang does not select the alternate path as a diverse alternate route to re-establish a connection upon failure of the preferred path. Rather, a next preferred path is selected (path deflection) if there is no choice of wavelengths which allows transport of the packet through the most preferred path, where the wavelengths are occupied by other packets. This is consistent with Chang's purpose of ensuring message security, rather than selecting a diverse alternate path for a first route, to re-establish a connection upon failure of the first route. Accordingly, Chang does not anticipate or render obvious Applicants' claim 16.

Moving now to claim 20, a computer system is recited as having a bus, a data storage device, and a processor that is operable to perform a method in which a first route is associated with a first channel, and a second route is associated with a second channel. The channels are in different physical links. The routes provide connections to similar nodes. The processor is to further select the second route as a diverse alternate route, to re-establish a connection that used the first route. In contrast, Chang provides for a preferred path and a next preferred/alternate path for purposes of securely transmitting messages to the destination, and does not teach or suggest that another route be selected as the diverse alternate route to re-establish a connection that used the first route. The criteria used in Chang for moving from a preferred route to the next preferred route, for example, does not teach or suggest the selection of the diverse alternate route as recited in Applicants' claim 20.

Claim 24 is directed to a computer system that has a means for selecting the second route as a diverse alternate route to re-establish a connection upon failure of the first route. The selection of a next preferred path in Chang (path deflection) does not teach or suggest the acts of selecting a second route as a diverse alternate route to re-establish a connection upon failure of a first route, where the second route is associated with a channel that is in a different physical link than the first route.

Any dependent claims not mentioned above are submitted as not being anticipated or obvious, for at least the same reasons given above in support of their base claims.

CONCLUSION

In sum, a good faith attempt has been made to explain why the rejection of the claims is improper, and how the claims are believed to be in condition for allowance. A Notice of Allowance referring to claims 1-27, as amended here, is therefore respectfully requested to issue at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No.

02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to: Mail Stop Fee Amendment, Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450 on February 24, 2004.


Margaux Rodriguez February 24, 2004